Appendix E CPP-MON-P7.5-A1 Tank Farm Load Limitations

DOCUMENT CATEGORY II

Lockheed Martin Idaho Technologies Company

INEL FORM L-0412.9# (08-96 - Rev. #00)

Management Control Procedure ICPP—D&R	TANK FARM LOAD LIMITATIONS	Identifier: CPP-MCP-P7.5-A1 Revision: 4 Page: 1 of 5
Document Control Center (208) 526-3501	Document Owner/Approver: R. L. Hastings	Effective DatAUG 2 6 1997

-975-A1.WPD/WP

DAR Number: 15796

1. PURPOSE

This procedure outlines the limitations for surface loads to enter the tank farm load zones in various surface conditions as per TS 4.2B14.

2. SCOPE AND APPLICABILITY

This procedure identifies loads that can be used on applicable tank farm load zones; included are actions to take when load type is needed, but not listed, or surface conditions such as snow or mud are present.

3. PREREQUISITES

None.

4. INSTRUCTIONS

NOTE: Drawing number 097726, Limitations On Vehicle Loads On The ICPP Tank Farm, can be used as a reference.

4.1 <u>Liquid Waste Processing Operators</u>: GO TO form ICPP-4163X, Tank Farm Surface Load Zone Inspections, and perform a weekly (see instructions on 4163X) survey of existing surface conditions, vehicles and loads.

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- 4.2 <u>Tank Farm Facility Management or Designee, or Liquid Waste Processing Shift Supervision</u>: Review conditional steps 4.2.1 through 4.2.4 and go to the appropriate response step (4.3 through 4.6) for limitations and controls.
 - 4.2.1 <u>IF</u> controlling and monitoring vehicles, THEN GO TO step 4.3.
 - 4.2.2 <u>IF</u> controlling and monitoring non-vehicle loads such as gravel, soil, plywood and cement barriers, for example, <u>THEN</u> GO TO step 4.4.
 - 4.2.3 <u>IF</u> controlling and monitoring large personnel groups, <u>THEN</u> GO TO step .4.5
 - 4.2.4 <u>IF</u> controlling and monitoring weather caused surface conditions, <u>THEN</u> GO TO step 4.6.
- 4.3 Prior to any vehicle entering tank farm load control zones, do the following:
 - NOTE 1: Drawing number 097726, Limitations On Vehicle Loads On The ICPP Tank Farm, can be used as a reference.
 - NOTE 2: Appendix A vehicle weights include the vehicle's nominal full loading.
 - 4.3.1 IF the actual vehicle load exceeds the vehicle's full nominal load, THEN contact tank farm facility management before proceeding.
 - 4.3.2 GO TO Appendix A, Specified Vehicle Listing, to ensure vehicle is listed; THEN RETURN TO step 4.3.3.

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- 4.3.3 IF a vehicle is not listed in Appendix A,

 THEN contact Tank Farm Facility management or Liquid Waste
 Processing shift supervision to see if the vehicle has prior access approval and filed per the 5% and 95% criteria (filed 4162X).
- 4.3.4 IF the vehicle has no prior access approval under the 5% and 95% criteria, THEN GO TO form ICPP-4162X, Tank Farm Vehicle or Load Addition Worksheet, to calculate the specified variables to verify if the 5% and 95% criteria can be met, AND RETURN TO step 4.3.5.
- NOTE 1: Vehicles may be replaced by other vehicles on a one for one basis, provided they have similar loads and configurations.
- NOTE 2: The 5% and 95% criteria are defined on form ICPP-4162X, Tank Farm Vehicle or Load Addition Worksheet.
- NOTE 3: New vehicles are evaluated against those vehicles listed in Appendix A only.
- 4.3.5 IF the vehicle meets the criteria
 THEN GO TO ICPP-4162X, complete and give to shift supervision;
 AND RETURN TO step 4.3.6.
- 4.3.6 <u>WHEN</u> a vehicle is approved (as shown on 4162X) or is listed in the table in Appendix A,
 <u>THEN</u> GO TO the beginning of Appendix A for a listing of zones the specified vehicle can travel on,
 AND RETURN TO step 4.3.7.
- 4.3.7 Inform drivers that to prevent amplifying wheel pressure upon the soil, vehicle speed must be a maximum 2.5 mph.
- 4.3.8 <u>IF</u> moving a crane on location, <u>THEN</u> inform the crane operator that the crane boom and its load must be kept low (as reasonably possible) for safe transportation.
- 4.3.9 <u>IF</u> maintenance, access, or general activities to the tank farm disturbs the tank farm membrane,

 THEN contact the Tank Farm Facility Engineer or designee.

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- 4.4 <u>IF</u> a non-vehicle load such as gravel, soil, plywood and concrete, for example, are needed on the tank farm, <u>THEN</u> do the following:
 - 4.4.1 IF the non-vehicle load is 1000 pounds or less, THEN no monitoring is needed.
 - 4.4.2 <u>IF</u> a non-vehicle load exceeds 1000 pounds, <u>THEN</u> contact tank farm Facility Engineer or designee for further instructions.
- 4.5 <u>IF</u> a large closely assembled group needs access to the tank farm, <u>THEN</u> do the following:
 - NOTE 1: A tour group, regardless of individual spacing, is considered closely assembled.
 - NOTE 2: Groups less than 17 need no monitoring.
 - 4.5.1 <u>IF</u> a group between 18 and 54 accumulate in one area, <u>THEN</u> the group must be controlled and monitored to the equivalency and restrictions of a Category 1 vehicle.
 - NOTE: Closely assembled groups beyond 108 are not allowed on the tank farm.
 - 4.5.2 <u>IF</u> a closely assembled group between 55 and 108 accumulate in one area, <u>THEN</u> the group must be controlled and monitored to the equivalency and restrictions of a Category 2 vehicle.
- NOTE: Rain amounts need not be monitored for tank farm surface load control.
- 4.6 IF rain or snow has caused surface conditions to become questionable (visible puddles, obviously wet soil, or more than 16 inches of snow),

 THEN do the following:
 - 4.6.1 <u>IF</u> more than 16 inches of surface snow depth is measured, <u>THEN</u> stop vehicle entrances, exits or movement on the tank farm, <u>AND</u> contact the Tank Farm Facility Engineer or designee.

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4.6.2 <u>IF</u> surface conditions exist under heavy rain or snow accumulations, or is excessively muddy,

<u>THEN</u> contact Industrial Safety or Tank Farm Facility management to determine if circumstances will make driving hazardous or will disturb the tank farm membrane.

5. RECORDS

ICPP-4162X, Tank Farm Vehicle or Load Addition Worksheet ICPP-4163X, Tank Farm Surface Load Zone Inspections

6. **DEFINITIONS**

None.

7. REFERENCES

See Basis Document, P7.5-A1, Tank Farm Load Limitations

8. APPENDICES

Appendix A, Vehicle Load Zone Guide and Specified Vehicle Listing

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APPENDIX A

Vehicle Load Guide and Specified Vehicle Listing

- 1. Vehicles given in the below table are grouped in four categories: I, II, III & IV.
- 2. Vehicles allowed in each zone as shown on drawing number 097726, Limitations On Vehicle Loads On The ICPP Tank Farm, are as follows.
 - 1) Zone A: A maximum of two (2) category I vehicles (except Bobcat 753), at least 10 feet apart.
 - 2) Zone B: A maximum of two (2) category I at least 10 feet apart.
 - 3) Zone C: Zone can accommodate one of the following vehicles combinations at any given time
 - a. Four (4) category I vehicles
 - b. Two (2) category I vehicles and one (1) category II vehicle
 - c. Two (2) category II vehicles
 - d. One (1) category III vehicle
 - e. Any other combination of vehicles with a sum weighing factor of 4.0 or less (see table category headings) is also allowed in Zone C.
 - 4) Zone D: Any combination of categories I, II, III, or IV (≥ 50 ft. from VES-WM-180 through VES-WM-190 vault walls).
- 3. Zones A, B, and C are figured for the vehicle and its load weight only.

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Vehicle Load Guide and Specified Vehicle Listing

Category I Ve	hicles (Weighing Factor equal 1.0)	
Trucks		
	Ford Ranger 4X2	
	Ford Ranger 4X4	
	Ford F150	
	Ford F250	
	Ford F250 HD	
Bobcat 753 Loader		
Vibratory Rammers		
	Wacker BS45Y	
	Wacker BS60Y and GVR151Y	
	Wacker BS62Y, 65Y	
Stone Duomat DR60 Roller		
Personnel		
	Accumulate group of 18 to 50	

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Category II	Vehicles (Weighing Factor equals 2.0)	
Trucks		
110003	Ford F350 SWR	
	Ford F350 DRW	
•	Ford F350 SD	
Forklifts		
	Caterpillar V70F	
	Caterpillar V80F	
	Caterpillar V90F	
	Caterpillar V100F	
	Caterpillar VC110F	
	Caterpillar V110B	
Backhoes		
	Case 580 Backhoe	
	Case 580E Extendahoe	
	Case 580 Super K Loader	
	Case 580D Backhoe	
	John Deere 310D Loader	
Grove AP 308 Crane		
Drill Rigs	·	
	Long Year 2200	
	Killman BK-B1	
Wacker BS105Y		
Vibratory Rollers		
	Wacker Mikasa MT-85	
	Wacker RS800A, H	
	Wacker RD800V	
	Wacker WDH86/110	
	Wacker W55, 55T, 74, 74A	
	Wacker RT560	
	Wacker RT820	
	Wacker R1000, S, B	
	Stone Duomat R50P	
	Stone Duomat DR70, 70P	
	Stone Duomat R778, DR77	
	Stone Duomat R90B	
	Stone Duomat CP323, CS323	
	Ingersol Rand DA-30 Roller	

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APPENDIX A

Vehicle Load Guide and Specified Vehicle Listing

(category II vehicles continued)

D4H Crawler Tractor	·		
Simon MPL-60 Manlist			
Personnel	J. 4 - 14		
		Accumulate group of 55 to 108	

	Veighing Factor equals 4.0)
Trucks	· · · · · · · · · · · · · · · · · · ·
and the second s	10 Yd Dump Truck
	Truck Tractor with 40 foot trailer
	10 Yd Concrete Truck
	GM Two-ton Truck
Forklifts	
	Hyster Forklift A66
:	Caterpillar V130B
	Caterpillar V155B
Becho Drill Rig	
CME 55 Drill Rig	
Caterpillar 966C Loader	
Caterpillar CB434 Roller	
Cranes	
	P&H 18
	P&H 35
	P&H 120
	P&H 122
	P&H 128
	Grove RT58C
	Grove RT58E
	Grove RT418
	Grove RT500
	Grove RT550
•	Grove RT528C
	Grove RT630B
Hitachi Trackhoe UH082	
International 520 Loader	
Liftall Forklift HT150	
Single Loader Hot Waste Box	

^{*}No other vehicles are permitted in the A, B, and C zones of the Tank Farm at the same time as the Grove RT58E.

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TANK FARM VEHICLE OR LOAD ADDITION WORKSHEET CATEGORY 2

This data sheet is the current revisit	n
date per the current Form Index:	

Signature / Date

			ad:
Re	place	d vehicle	as listed in Appendix A, per P7.5-A1, Tank Farm Surface Load Limitations
	truct		
1.		n must be gnee.	e completed by one of the following: shift supervision, engineering analyst, or tank farm facility management or
2.			eted, file one copy (photocopy) at the shift supervisor's office, and give the original to the tank farm facility esignee .
3.	Ansv (see	ver the fo	ollowing questions, (a-e) using the formulas provided, to verify if new vehicle falls within the 5% or 95% criteria definitions); show calculations in the space provided next to the formulas. (TS 4.2B14)
		NOTE:	In the formulas provided, the superscript N equals new for new vehicle; likewise the superscript O equals the replaced vehicle. Additionally, there is no correlation between the superscript N and O and the vehicle's model year.
	a.		v vehicle's total load (W_N), including its combined weight and lift load, do not exceed the design loads of the it replaces (old).
			W _N ≤ 1.05 W _O
		Pass []	Fail []
	b.	The nev	v vehicle has the same number of axles and supports (if available or needed) as the vehicle it replaces (old).
		Pass []	Fail []
	C.	The who	eel track (width) and support distance (when used), of the new vehicle (T_N) is within \pm 5% of the vehicle it T_N .
			0.95 To ≤Tn ≤1.05 To
		Pass []	Fail []
	d.	The dist	tance between the new vehicle's front and rear axles and supports (WB _N) is within \pm 5% of the vehicle it replaces if there are more than two axles, each adjacent pair of axles must be evaluated.
			0.95 WBo ≤ WBn ≤ 1.05 WBo
		Pass []	Fail []
	e .	The nev	w vehicle's support contact area, such as tires and pads (Aא), is at least 95% of the vehicle it replaces (Ao).
			An ≥ 0.95 Ao
		Pass []	Fail []

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.₹EV. 2	
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:Or		

1.	engineer or designee must be notified. If vehicle passes, go to step g.			
	1. Identify which category the vehicle failed and why.			
g.	L certify the new (replacing) vehicle meets the 5% criteria, and may be allowed in the tank			
9.	l certify the new (replacing) vehicle meets the 5% criteria, and may be allowed in the tank			
	farm control zones as a category 1 2 3 4 vehicle.			
	Name (printed):			
	Date:			
	Signature:			
	Authorizer can be tank farm facility engineer or manager or designee, or an engineering analyst.			
h.	I have checked the calculations and concur, or have made corrections to bring concurrence (authorizer will need to review corrections for concurrence and initial their signature), with item e above.			
	Name (printed):			
	Date:			
	Signature:			
	Witness/verifier can be tank farm facility engineer or manager or designee, or an engineering analyst; but not same individual who signed on step g.			
I.	Attach supporting documents such as manufacture's specifications on load weight and side-to-side and front-to-back wheel base dimensions.			

5% and 95% criteria definitions (TS 4.2B14)

- 1) Total new vehicle load weight, including its combined weight and lift load, do not exceed the old vehicle's design loads by more than 5%.
- 2) The distance between the new vehicle's axles and supports is within 5% of the old vehicle's axles and supports.
- 3) The new vehicle's support contact area is not less than 95% of the old vehicle's support contact area.

Table 2

List of Vehicles Considered for ICPP Tank Farm

Maximum Lift Load = 12 Kips

r		
	Vehicle	AEC Reference
Trucks	Ford Ranger 4x2	7-4A
	Ford Ranger 4x4	7-4A
	Ford F150	7-4A
	Ford F250	7-4A
	Ford F250 HD	•
		7-4A
<u>.</u>	Ford F350 DRW	7-4A
	Ford F350 SD	7-4A
	10 Yd Conc. Truck	
	10 Yd. Dump Truck	
	Tractor.	7–25
	40 Ft. Trailer	7-25
Forklifts	Cat V70F	7-4D
	Cat V80F	7–4D
	Cat V90F	7–4D
	Cat V100F	7–4D
	Cat VC110F	7–4D
	Cat V110B	7–4F
	Cat V130B	7–4F
	Cat V155B	7–4F
Loaders/	Case 580 SuperK	7-4L
Backhoes	Cat 966C	7–4H
	Bobcat 753	7–4M
Wheeled cr	anes on tires	
	P&H 35	7 - 4A
•	P&H 120	7-5A
	P&H 122	7-5C
	P&H 128	7-5D
	P&H 150	7-5E
	P&H 165	7-5F
	Grove AP308	7-5G
	Grove RT58C	7-5H&I
	Grove RT418	7-5J&K
	Grove RT528C	7-41
	Grove RT630B	7-5L&M
	Grove RT740B	7-5N&O
	Grove RT760	7-5P
	Grove RT990	7–13
	Grove HL150T	7-5R

	Vehicle	AEC Reference
Drill Rigs		
	Killman BK-81	7–2
	CME 55	7-2
	Long Year 2200	7-2
Robotic Tan	-	
	RTI	7–1
Vibratory Ra		
Wacker	BS45Y	7-4N
	BS60Y,GVR151Y	7-4N
	BS62Y,65Y	7-4N
	BS105Y	7-4N
Vibratory Re		
Wacker	RS800A,H	7-4N
•	W55,55T,74,74A	7-4N
•	RT560	7-4N
•	RT820	7-4N
•	WDH86/110	7-4N
•	RD880V	7-4N
•	R1000,S,B	7-4N
Stone	R50P	7-40
•	DR60	7-40
•	DR70,DR70P	7-40
•	R77B,DR77	7-40
	R90B	7-40
Cat	CP323,CS323	7-4B
	CB 434	7-4C
Crawler Cra	ines	
	Grove HL150C	7 - 5S
·	Manitowoc 4000	7-4
Crawler Bad	ckhoe	
	CAT 235	7 – 4G
Crawler Tra	ctor	
	D4H Series II	7-13



Table 3
Summary of Vehicle Loads Data

********	Vehicle	Min. Track	Wheelbase	e No. of Tires		Max Axle Loads (lbs)		Ref #
		Front/Rear(in)	Min/Max(in)	Front	Rear	Front	Rear	
Trucks	Ford Ranger 4x2	55.3/54.1	108/125	2	2	2580	2750	7-4A
	Ford Ranger 4x4	55.3/54.1	108/125	2	2	2800	2750	7-4A
	Ford F150		117/155	2	2	3800	3800	7-4A
	Ford F250		133	2	2	3900	5300	7-4A
	Ford F250 HD		133/155	2	2 ·	4600	6250	7-4A
	Ford F350 SRW	65.7/64.3	133/168	2	2	5000	6250	7-4A
	Ford F350 DRW	65.7/67.1	133/168	2	4	5000	8250	7-4A
	Ford F350 SD	67/69	137/161/185	· 2	4	5000	11000	7-4A
	10 Yd Conc. Truck	82.75/72	244	2	8	9340	56760	7-4P
	10 Yd. Dump Truc	95	204	2	8	15000	38000	7-25
	Tractor	95	204	2	8	15000	38000	7-25
•	40 Ft. Trailer	96	450	0	8		38000	7–25
Forklifts	Cat V70F	45.3/46.4	72	2	2	18550	1950	7-4D
	Cat V80F	45.3/46.4	72	2	2	19900	2200	7-4D
	Cat V90F	45.3/46.4	72	2	2	21300	2500	7-4D
	Cat V100F	45.7/46.4	82	2	2	23200	2200	7-4D
	Cat VC110F	45.7/46.4	82	2	2	24550	2350	7-4D
	Cat V110B	65	86	4	2	25950	3000	7-4F
	Cat V130B	65	86	4	2	28700	3150	7-4F
	Cat V155B	65	86	4	2	32500	3550	7-4F
Loaders/	Case 580 SuperK	67.5/61.2	84	· 2	2	8960	12014 (F)	7-4L
Backhoes		. •	•	•		5149	13745 (R)	*
		•	•	*	•	5149	12014 (U)	*
	Cat 966C	85	122	2	2	65057	0 (F)	7–4H
		•			•	11138	25988 (U)	*
	Bobcat 753	47	35.44 _.	2	2	7330	0 (F)	7-4M
	•	•	•		#	1419	3311 (U)	•

NOTE: For all vehicles, load values given represent rated axle loads unless otherwise noted. *For loaders and backhoes, load values represent unloaded condition (U) or ultimate axle loads due to tipping front (F) or rear (R).



Table 3 (Cont'd)

Summary of Vehicle Loads Data

Vehicle	Main Outrigg	er Spacing	Offset of Front	Pad Size	Weight	Ref #
,	Length	Width	Outrigger from Ctr		(lbs)	
Wheeled cranes on pads		*				
P&H 35	19'-3"	17'-10"	10'-1 1/2"	19.25" sq.	53261	7-5B
P&H 120	18'-2"	18'-0"	8'-8"	14" sq.	44087	7-5A
P&H 122	18'-2"	18'-0"	8'-8"	14" sq.	45448	7-5C
P&H 128	18'-2"	18'-0"	8'-8"	14" sq.	51320	7-5D
P&H 150	23'-7.9"	23'-7"	12'-0 3/4"	24" dia.	79177	7-5E
P&H 165	23'-7"	23'-7 1/2"	12'-4 1/2"	24" dia.	96054	7-5F
Grove AP308	135.5"	112"	78.5 "	72 sq. ln.	15461	7-5G
Grove RT58c	20'-2"	14'-6"	124.5"	13.5" sq.	58280	7-5H&I
Grove RT418	18'-1"	18'-6"	106"	16.5" sq.	37200	7-5J&K
Grove RT5280	18'-9"	19'-0"	9'-2 1/4"	16.5" sq.	51610	7-41
Grove RT6308	3 18'-8 3/4 "	19'-0"	9'-2 1/4"	16.5" sq.	53670	7-5L&M
Grove RT7408	3 22'-1 1/2"	22'-0"	11'-1 1/2"	24" dia.	66180	7-5N&O
Grove RT760	22'-11"	23'-0"	11'-3"	24" dia.	90885	7-5P
Grove RT990	26'-9"	24'-0"	15'-1 1/2"	30.5" dia.	136400	7–13
Grove HL150T	19'-10"	22'-0"	10'-1.8"	30.5" dia.	189804	7-5R
	39'-2"	0'-0"	24'-11"	24" dia.	#	
Drill Rigs on pads						
Killman BK-81	26.8'		 ,		28000	7-2
CME 55	26'-6"				33100	7-2
Long Year 220	00	-	es es		12200	7-2
Robotic Tank Ispection						
RTI	approx 6'	approx 6'			13000	7-1



Table 3 (Cont'd)
Summary of Vehicle Loads Data

Vehicle	Track	Wheelbase	No. of Tires		Weight	Max axle loads (lbs)			Ref#
	(inches)	(inches)	Front	Rear	(pounds)	Front	Rear	-	
Wheeled cranes on tires	<u> </u>								
P&H 35	77 .	125	2	2	53261	26234	27027	(1)	7-5B
P&H 120	77	120	2	2	44087	18732	25355	*	7-5A
P&H 122	77	120	2	2	45448	21262	24186	#	7-5C
P&H 128	77	120	2	2	51320	23965	27355	*	7-5D
P&H 150	102	150	2	2	79177	41401	37776	*	7-5E
P&H 165	102	155	2	2	96054	49365	46690	*	7-5F
Grove AP308	72	84	2	2	15461	6731	8730	#	7-5G
Grove RT58C	***	121	2	2	58280	28320	29960	#	7-5H&I
Grove RT418	82	121	2	2	37200	18000	19200	#	7-5J&K
Grove RT528C	77.5/81.125	121	2	2	51610	23310	28300	•	7-41
Grove RT630B	77.5/81.125	121	2	2	53670	26785	26885	#	7-5L&M
Grove RT740B	96	150	2	2	66180	33020	33160	#	7-5N&O
Grove RT760	98.5	150	2	2	90885	45805	45080	#	7-5P
Grove RT990	113	185	2	2	136400	70050	66350		7-13
Grove HL150T	99.75	238	8	8	189804	110732	79072	(2)	7-5R
•			•			27636	162168	(3)	•
Drill Rigs on tires	:								
Killman BK-81	100/112	246	2	8	28000				7-2
CME 55	96	254			33100				7-2
Long Year 2200	90	136			12200				7-2

NOTES: For all cranes, axle load values represent unloaded condition.

(1) Weight of Basic Standard Machine. (2) Weight of Complete Standard Crane with boom positioned to front. (3) Weight of Complete Standard Crane with Boom positioned to rear.'



Table 3 (Cont'd)

Summary of Vehicle Loads Data

Vehicle	Shoe size (in.	x In.)	Weight		Total Force	Ref #
	Width	Length	(pounds)		(pounds)	
Vibratory Rammers			······································		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Wacker						
BS45Y	10.	13	122		2250	7-4N
BS60Y,GVR151Y	11	13	135		2775	7-4N
BS62Y,65Y	13,11	13	152	•	3640	7-4N
BS105Y	16	15	235	· ·	5900	7-4N
Vehicle	Drum width	Wheelbase	Weight	Centrifugal Force	Total Force	
	(inches)	(inches)	(pounds)	(pounds)	(pounds)	
Vibratory Rollers	· · · · · · · · · · · · · · · · · · ·				<u> </u>	
Wacker						
RS800A,H	28.3		1025	3500	4525	7-4N
W55,55T,74,74A	21.6		1840	9000	10840	7-4N
RT560	22		2830	14000	16830	7-4N
RT820	32		3020	14000	17020	7-4N
WDH86/110	34/43	90 est	2822	8550	11372	7-4N
RD880V	35.4	400 000	2430	3000	5430	7-4N
R1000,S,B	40		4700	12000	16700	7-4N
Stone Duomat						•
R50P	- 20	***	1795	e	6600	7-40
DR60	25	***	1210		3600	7-40
DR70,DR70P	27		1540	eri ese	6600	7-40
R77B,DR77	30	-	2025		8800	7-40
R90B	35	gun 100g	2920	600 400	13200	7-40
Caterpillar	20				. 4200	
CP323,CS323	48	94	9800	12700 *	22500	7-4B
CB 434	56	103	13350	16800 *	46950	7-4C

NOTE: For all rollers, dynamic load is shared by rollers unless otherwise noted.



^{*} For Cat CP323 & CS323 machines, dynamic load is transmitted through front drum only.

Table 3 (Cont'd)

Summary of Vehicle Loads Data

Vehicle	Track	Tread Length	Tread Width	Welght*	Ref #
	(Inches)	(inches)	(inches)	(pounds)	
Crawler cranes					
Grove HL150C	206	250	46	301890	7-58
Manitowoc 4000	205	223	48	315160	7–4
Crawler backhoe			,	•	
CAT 235	. 106	199	30	101750	7-4G
Crawler tractor			•		
D4H Series II	66	88	18	22895	7-13



